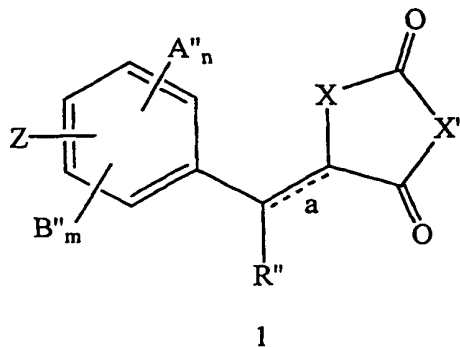
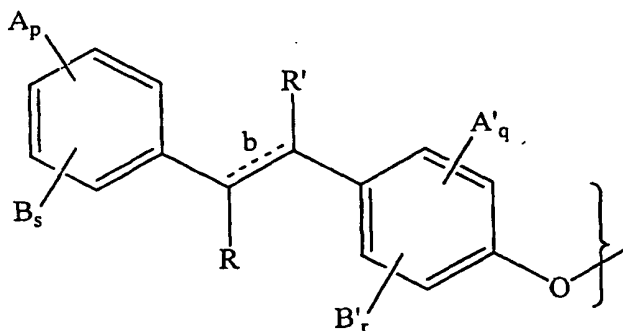


Claims:

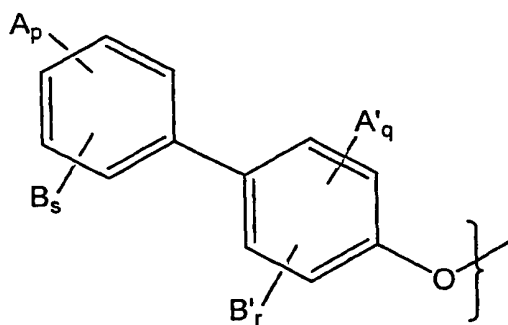
1. A compound represented by the following formula 1:



- 5 wherein Z is



or



- 10 n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a, b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

R and R' each independently represent a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; -CONR₂''''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

5

R'' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

10

R''' independently represents a linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; or -(CH₂)_x-Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;

15

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

20

B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

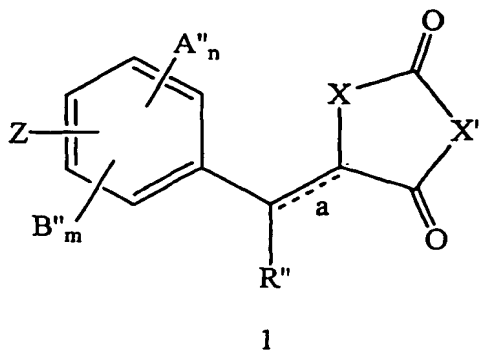
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or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a methylenedioxy or ethylenedioxy group; and

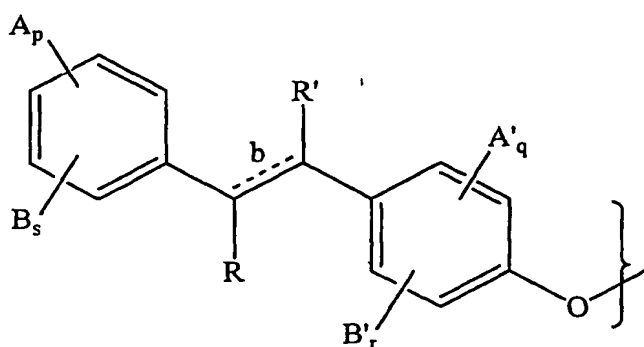
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X and X' independently represent >NH, >NR''', -O-, or -S-.

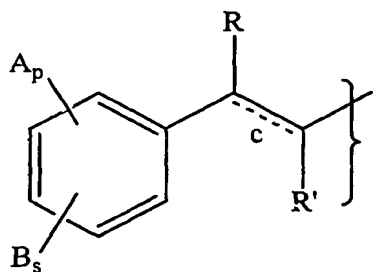
2. A compound represented by the following formula 1:



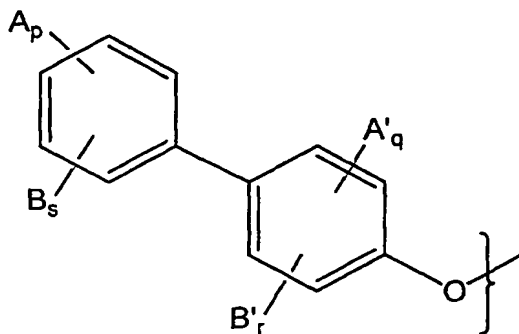
wherein Z is



5 or



or



n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; $a,$

10

b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

- 5 R independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; -CONR₂''''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;
- 10 R' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OR'''; -CONR₂''''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;
- 15 R'' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;
- 20 R''' independently represents a linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; or -(CH₂)_x-Ar, where x represents an integer from 1 to 6 and Ar represents aryl;
- R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;
- 25

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

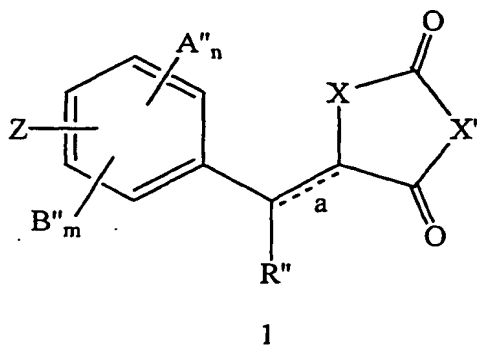
- A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;
- 30

B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

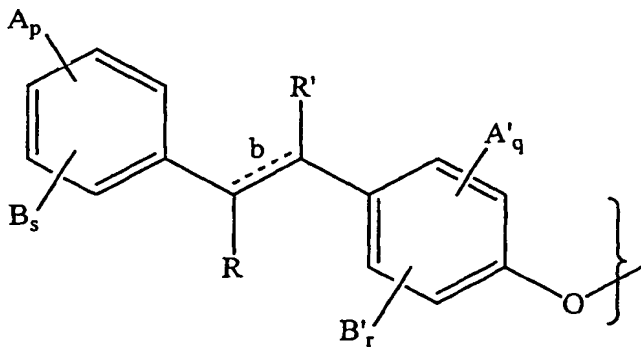
- 5 or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a methylenedioxy or ethylenedioxy group; and

X and X' independently represent >NH, >NR''', -O-, or -S-.

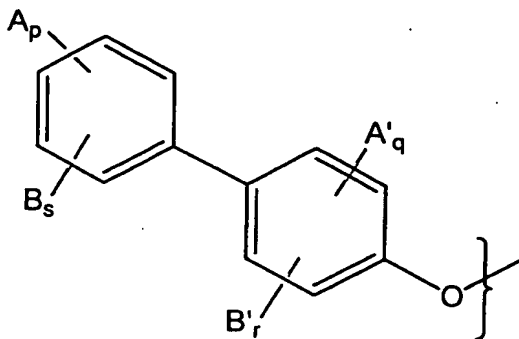
- 10 3. A pharmaceutical composition comprising:
a therapeutically effective amount of a compound represented by the following formula 1:



wherein Z is



- 15 or



n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a, b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

R and R' each independently represent a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OH$; $-OR'''$; $-CONR_2'''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R'' independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OH$; $-OR'''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R''' independently represents a linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; or $-(CH_2)_x$ -Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

R'''' independently represents a hydrogen atom; optionally substituted C_1 - C_{20} alkyl; optionally substituted C_1 - C_{20} alkoxy; optionally substituted C_2 - C_{20} alkenyl; optionally substituted C_6 - C_{10} aryl; or NR_2'''' represents a cyclic moiety;

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

- 5 B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

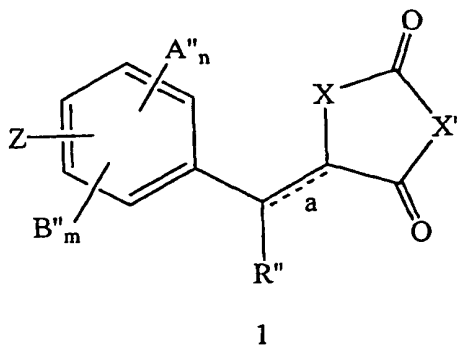
or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a
10 methylenedioxy or ethylenedioxy group; and

X and X' independently represent >NH, >NR''', -O-, or -S-;

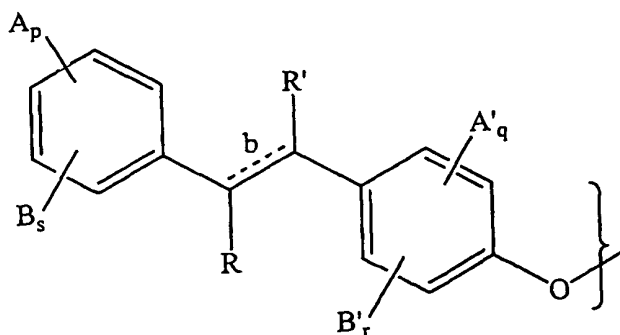
in a physiologically acceptable carrier.

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4. A pharmaceutical composition comprising:
a therapeutically effective amount of a compound represented by the following formula 1:

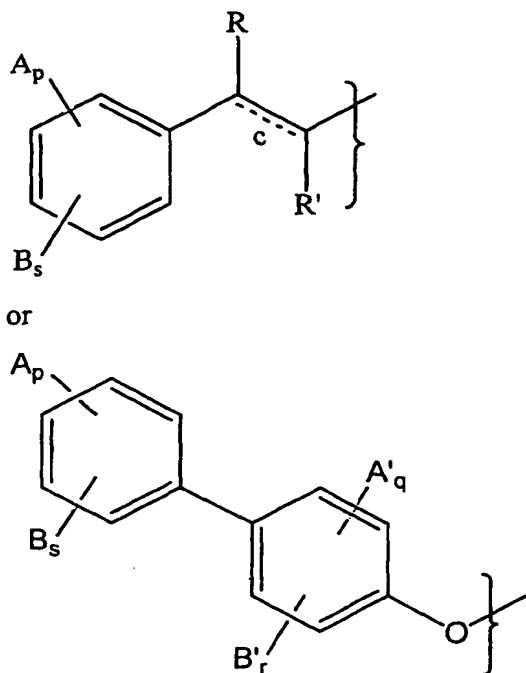


wherein Z is



20

or



- n , m , q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a , b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;
- 10 R independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-\text{CO}_2\text{Z}'$; $-\text{CO}_2\text{R}'''$; $-\text{NH}_2$; $-\text{NHR}'''$; $-\text{NR}_2'''$; $-\text{OH}$; $-\text{OR}'''$; $-\text{CONR}_2''''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;
- 15 R' independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-\text{CO}_2\text{Z}'$; $-\text{CO}_2\text{R}'''$; $-\text{NH}_2$; $-\text{NHR}'''$; $-\text{NR}_2'''$; $-\text{OR}'''$; $-\text{CONR}_2''''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;
- 20 R'' independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-\text{CO}_2\text{Z}'$; $-\text{CO}_2\text{R}'''$; $-\text{NH}_2$; $-\text{NHR}'''$; $-\text{NR}_2'''$; $-\text{OH}$; $-\text{OR}'''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R''' independently represents a linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; or -(CH₂)_x-Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

- 5 R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

10

A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

- 15 B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

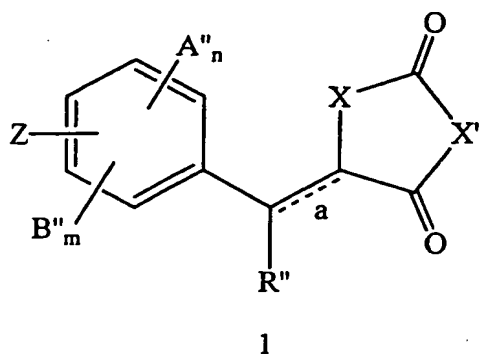
or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a
20 methylenedioxy or ethylenedioxy group; and

X and X' independently represent >NH, >NR''', -O-, or -S-;

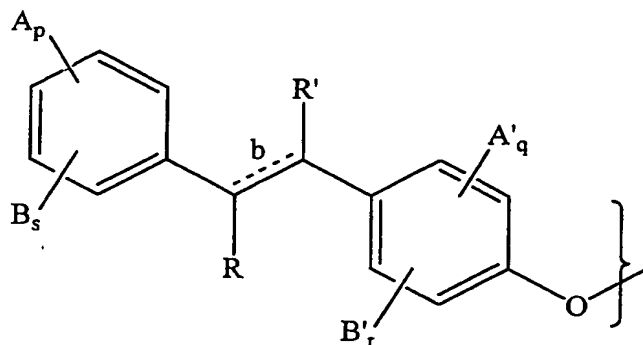
in a physiologically acceptable carrier.

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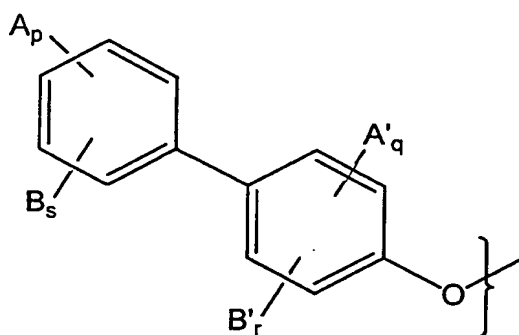
5. A method of treating diabetes comprising:
administering to a subject suffering from a diabetic condition, a therapeutically
effective amount of a compound represented by the following formula 1:



wherein Z is



or



5

n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a, b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

10

R and R' each independently represent a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-\text{CO}_2\text{Z}'$; $-\text{CO}_2\text{R}'''$; $-\text{NH}_2$; $-\text{NHR}'''$; $-\text{NR}_2'''$; $-\text{OH}$; $-\text{OR}'''$; $-\text{CONR}_2''''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

15

R'' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted
5 linear or branched C₂-C₂₀ alkenyl;

R''' independently represents a linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; or -(CH₂)_x-Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

10 R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

15 A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro;
20 optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a methylenedioxy or ethylenedioxy group; and

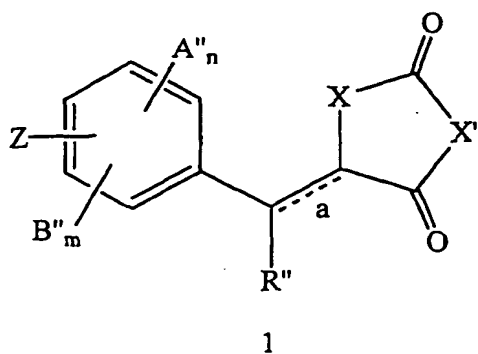
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X and X' independently represent >NH, >NR''', -O-, or -S-;

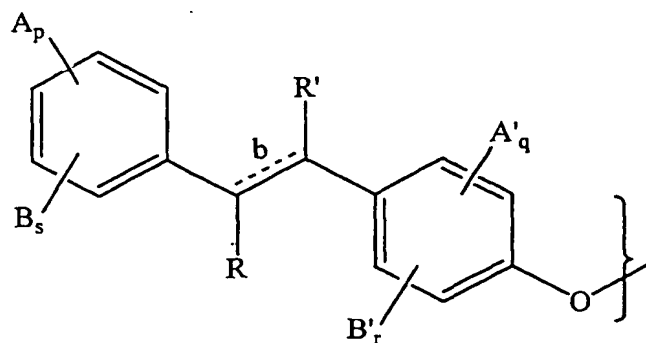
in a physiologically acceptable carrier.

30 6. A method of treating diabetes comprising:

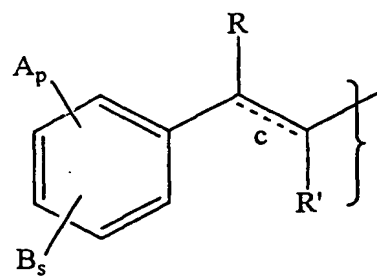
administering to a subject suffering from a diabetic condition, a therapeutically effective amount of a compound represented by the following formula 1:



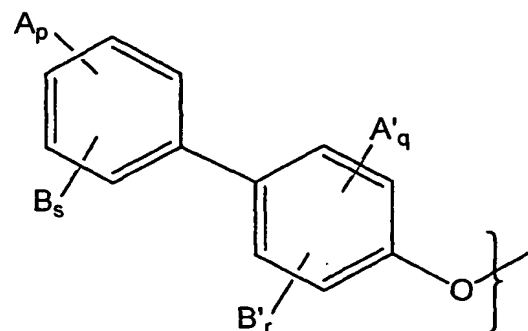
wherein Z is



or



or



n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a , b and c represent double bonds which may be present or absent; when present, the double

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bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

5 R independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; -CONR₂'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

10 R' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OR'''; -CONR₂'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

15 R'' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

20 R''' independently represents a linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; or -(CH₂)_x-Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;

25

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

30

B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a methylenedioxy or ethylenedioxy group; and

X and X' independently represent >NH, >NR'', -O-, or -S-;

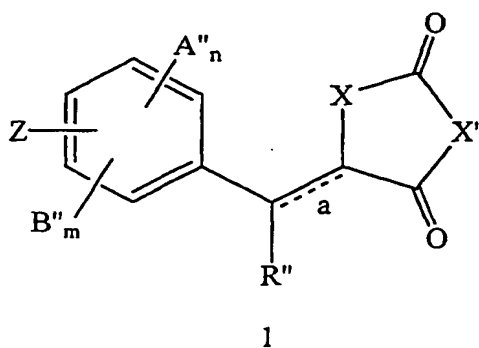
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in a physiologically acceptable carrier.

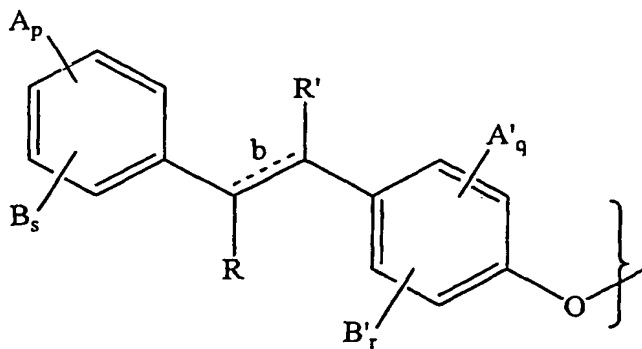
7. A method of treating inflammation or inflammatory disease comprising:

administering to a subject suffering from such condition, a therapeutically effective

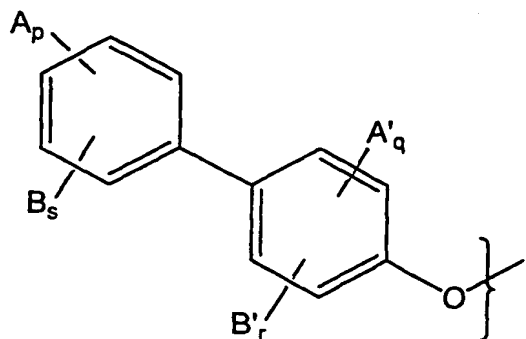
10 amount of a compound represented by the following formula 1:



wherein Z is



15 or



n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a, b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

R and R' each independently represent a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OH$; $-OR'''$; $-CONR_2''''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R'' independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OH$; $-OR'''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R''' independently represents a linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; or $-(CH_2)_x$ -Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

R'''' independently represents a hydrogen atom; optionally substituted C_1 - C_{20} alkyl; optionally substituted C_1 - C_{20} alkoxy; optionally substituted C_2 - C_{20} alkenyl; optionally substituted C_6 - C_{10} aryl; or NR_2'''' represents a cyclic moiety;

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

A, A' and A" each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

- 5 B, B' and B" each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

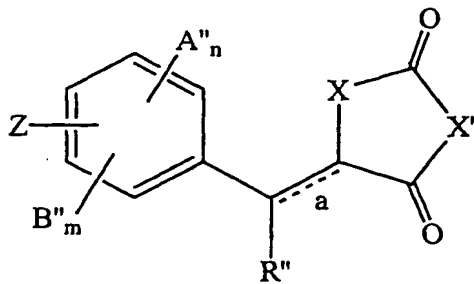
or A and B jointly, A' and B' jointly, or A" and B" jointly, independently represent a
10 methylenedioxy or ethylenedioxy group; and

X and X' independently represent >NH, >NR'', -O-, or -S-;

in a physiologically acceptable carrier.

15

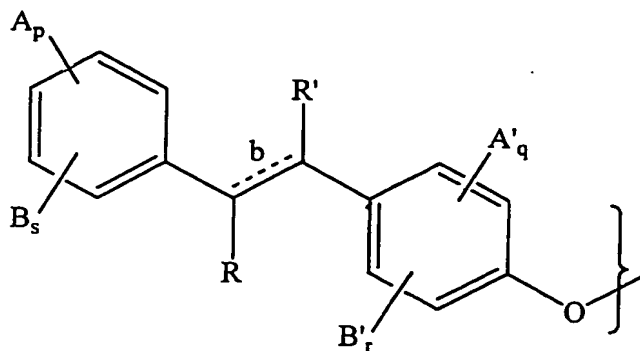
8. A method of treating inflammation or inflammatory disease comprising:
administering to a subject suffering from such condition, a therapeutically effective
amount of a compound represented by the following formula 1:



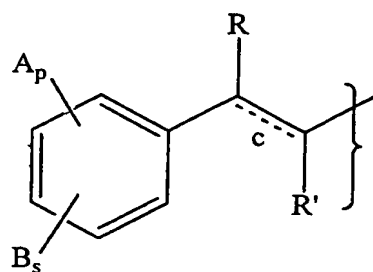
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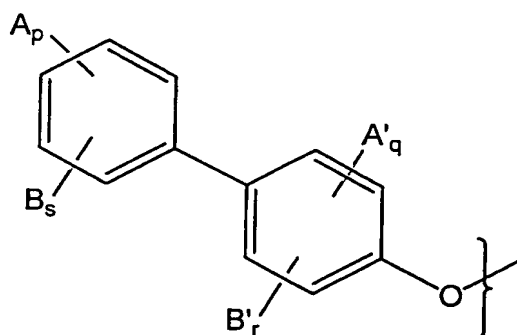
wherein Z is



or



or



5

n , m , q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a , b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

R independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OH$; $-OR'''$; $-CONR_2''''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

15

R' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OR'''; -CONR₂'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

5

R'' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

10

R''' independently represents a linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; or -(CH₂)_x-Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;

15

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

20

B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

25

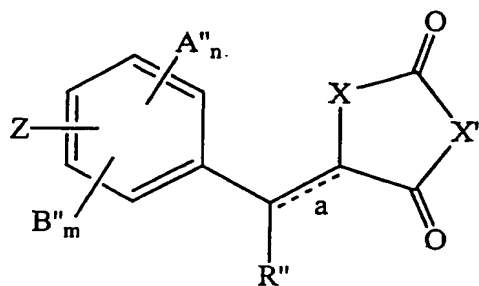
or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a methylenedioxy or ethylenedioxy group; and

30

X and X' independently represent >NH, >NR''', -O-, or -S-;

in a physiologically acceptable carrier.

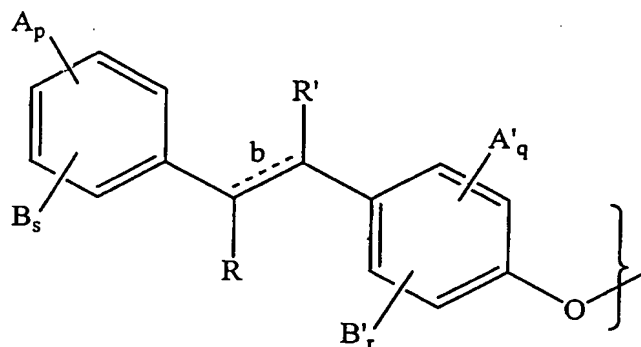
9. A method of treating immunological disease comprising:
administering to a subject suffering from an immunological disease a therapeutically
effective amount of a compound represented by the following formula 1:



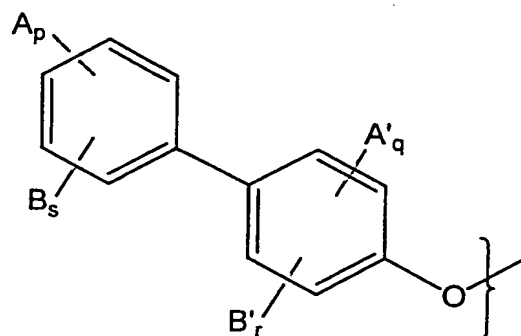
5

1

wherein Z is



or



10 n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a, b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

15

R and R' each independently represent a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; -CONR₂'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

5

R'' independently represents a hydrogen atom; linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; -CO₂Z'; -CO₂R'''; -NH₂; -NHR'''; -NR₂'''; -OH; -OR'''; halogen atom; optionally substituted linear or branched C₁-C₂₀ alkyl; optionally substituted linear or branched C₂-C₂₀ alkenyl;

10

R''' independently represents a linear or branched C₁-C₂₀ alkyl; linear or branched C₂-C₂₀ alkenyl; or -(CH₂)_x-Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;

15

Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

20

B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

25

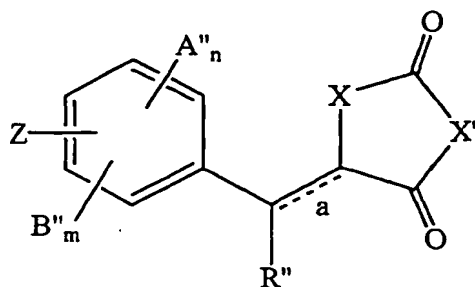
or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a methylenedioxy or ethylenedioxy group; and

30

X and X' independently represent >NH, >NR''', -O-, or -S-;

in a physiologically acceptable carrier.

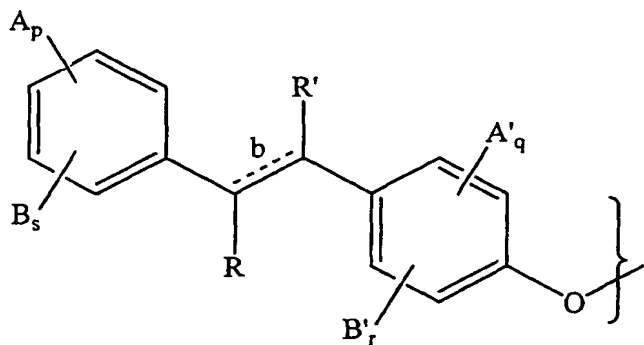
10. A method of treating immunological disease comprising:
administering to a subject suffering from an immunological disease a therapeutically
effective amount of a compound represented by the following formula 1:



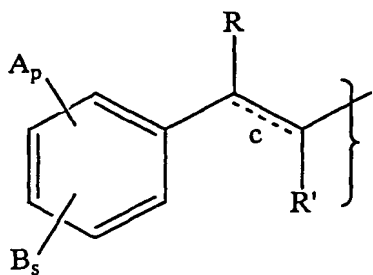
1

5

wherein Z is

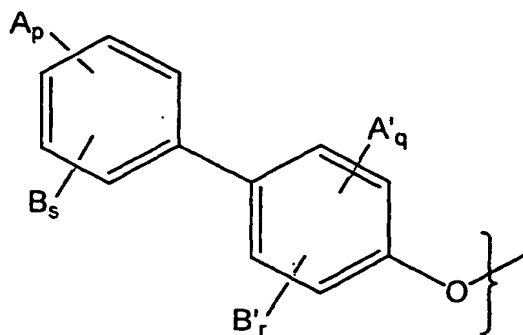


or



10

or



n, m, q and r independently represent integers from zero to 4 provided that $n + m \leq 4$ and $q + r \leq 4$; p and s independently represent integers from zero to 5 provided that $p + s \leq 5$; a, b and c represent double bonds which may be present or absent; when present, the double bonds may be in the E or Z configuration and, when absent, the resulting stereocenters may have the R- or S- configuration;

R independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OH$; $-OR'''$; $-CONR_2'''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R' independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OR'''$; $-CONR_2'''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R'' independently represents a hydrogen atom; linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; $-CO_2Z'$; $-CO_2R'''$; $-NH_2$; $-NHR'''$; $-NR_2'''$; $-OH$; $-OR'''$; halogen atom; optionally substituted linear or branched C_1 - C_{20} alkyl; optionally substituted linear or branched C_2 - C_{20} alkenyl;

R''' independently represents a linear or branched C_1 - C_{20} alkyl; linear or branched C_2 - C_{20} alkenyl; or $-(CH_2)_x$ -Ar, where x represents an integer from 1 to 6 and Ar represents aryl;

R'''' independently represents a hydrogen atom; optionally substituted C₁-C₂₀ alkyl; optionally substituted C₁-C₂₀ alkoxy; optionally substituted C₂-C₂₀ alkenyl; optionally substituted C₆-C₁₀ aryl; or NR₂'''' represents a cyclic moiety;

5 Z' represents a hydrogen atom or a pharmaceutically acceptable counter-ion;

A, A' and A'' each independently represent a hydrogen atom; C₁-C₂₀ acylamino; C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl; C₁-C₂₀ alkoxycarbonyl; C₁-C₂₀ alkoxy; C₁-C₂₀ alkylamino; C₁-C₂₀ alkylcarboxylamino; carboxyl; cyano; halo; or hydroxy;

10

B, B' and B'' each independently represent; C₂-C₂₀ alkenoyl; aroyl; aralkanoyl; nitro; optionally substituted, linear or branched C₁-C₂₀ alkyl; or optionally substituted, linear or branched C₂-C₂₀ alkenyl;

15 or A and B jointly, A' and B' jointly, or A'' and B'' jointly, independently represent a methylenedioxy or ethylenedioxy group; and

X and X' independently represent >NH, >NR''', -O-, or -S-;

20 in a physiologically acceptable carrier.

11. A method of inhibiting the activity of TNF-alpha, IL-1, IL-6 or COX-2 which comprises administering to a host in need of such inhibition an effective amount of a compound according to claim 1 or claim 2.

25

12. The method of inhibiting the undesired action of cytokine or cyclooxygenase which comprises administering to a host in need of such inhibition an effective amount of a compound according to claim 1 or claim 2.

30

13. The method of treating a disease mediated by cytokines or cyclooxygenase which comprises administering to a host in need of such treatment a compound according to claim 1 or claim 2.

14. The method of treating insulin resistance which comprises administering to a host in need of such treatment an effective amount of a compound according to claim 1 or claim 2.
- 5 15. The method of treating hyperlipidemia which comprises administering to a host in need of such treatment an effective amount of a compound according to claim 1 or claim 2.
- 10 16. The method of treating coronary heart disease which comprises administering to a host in need of such treatment an effective amount of a compound according to claim 1 or claim 2.
- 15 17. The method of treating multiple sclerosis which comprises administering to a host in need of such treatment an effective amount of a compound according to claim 1 or claim 2.
18. The method of treating cancer which comprises administering to a host in need of such treatment an effective amount of a compound according to claim 1 or claim 2.
- 20 19. A compound according to claim 1 selected from the group consisting of:
2-{4-[4-(2,4-dioxothiazolidin-5-ylidenemethyl)-phenoxy]-phenyl}-3-p-tolylacrylic acid,
2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-3-p-tolylacrylic acid,
2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-3-p-tolylacrylic acid methyl ester,
25 3-(3,5-dimethylphenyl)-2-{4-[4-(2,4-dioxothiazolidin-5-ylidenemethyl)-phenoxy]-phenyl}-acrylic acid,
3-(3,5-dimethylphenyl)-2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-acrylic acid,
3-(3,5-dimethylphenyl)-2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-
30 acrylic acid methyl ester,
5-(4-{4-[2-(3,5-dimethylphenyl)-1-(morpholine-4-carbonyl)-vinyl]-phenoxy}-benzyl)-thiazolidine-2,4-dione,
5-(4-{4-[2-(4-methoxyphenyl)-vinyl]-phenoxy}-benzyl)-thiazolidine-2,4-dione,
5-(4-{4-[2-(3,5-dimethoxyphenyl)-vinyl]-phenoxy}-benzyl)-thiazolidine-2,4-dione,

5-[4-(4'-methoxybiphenyl-3-yloxy)-benzylidene]-thiazolidine-2,4-dione,
 5-[4-(4'-methoxybiphenyl-3-yloxy)-benzyl]-thiazolidine-2,4-dione,
 5-[4-(2',4'-dimethoxybiphenyl-3-yloxy)-benzylidene]-thiazolidine-2,4-dione, and
 5-[4-(3',5'-dimethoxybiphenyl-3-yloxy)-benzyl]-thiazolidine-2,4-dione.

5

20. A pharmaceutical composition comprising a therapeutically effective amount of a compound selected from the group consisting of:

- 2-{4-[4-(2,4-dioxothiazolidin-5-ylidenemethyl)-phenoxy]-phenyl}-3-p-tolylacrylic acid,
 2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-3-p-tolylacrylic acid,
 10 2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-3-p-tolylacrylic acid methyl ester,
 3-(3,5-dimethylphenyl)-2-{4-[4-(2,4-dioxothiazolidin-5-ylidenemethyl)-phenoxy]-phenyl}-acrylic acid,
 3-(3,5-dimethylphenyl)-2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-
 15 acrylic acid,
 3-(3,5-dimethylphenyl)-2-{4-[4-(2,4-dioxothiazolidin-5-ylmethyl)-phenoxy]-phenyl}-acrylic acid methyl ester,
 5-(4-{4-[2-(3,5-dimethylphenyl)-1-(morpholine-4-carbonyl)-vinyl]-phenoxy}-benzyl)-thiazolidine-2,4-dione,
 20 5-(4-{4-[2-(4-methoxyphenyl)-vinyl]-phenoxy}-benzyl)-thiazolidine-2,4-dione,
 5-(4-{4-[2-(3,5-dimethoxyphenyl)-vinyl]-phenoxy}-benzyl)-thiazolidine-2,4-dione,
 5-[4-(4'-methoxybiphenyl-3-yloxy)-benzylidene]-thiazolidine-2,4-dione,
 5-[4-(4'-methoxybiphenyl-3-yloxy)-benzyl]-thiazolidine-2,4-dione,
 5-[4-(2',4'-dimethoxybiphenyl-3-yloxy)-benzylidene]-thiazolidine-2,4-dione, and
 25 5-[4-(3',5'-dimethoxybiphenyl-3-yloxy)-benzyl]-thiazolidine-2,4-dione,
 together with a physiologically acceptable carrier therefor.

21. A method for treating diabetes, comprising: co-administering an effective amount of a compound of claim 1 or claim 2 and an agent selected from the group consisting of:

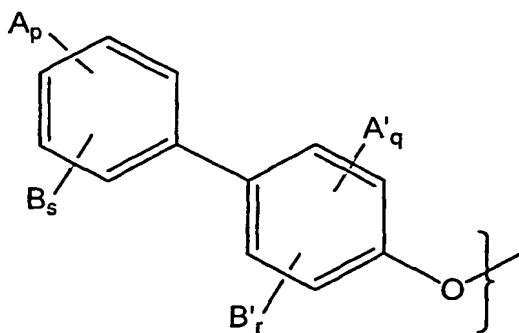
- 30 insulin or an insulin mimetic,
 a sulfonylurea or other insulin secretagogue,
 a thiazolidinedione,
 a fibrate or other PPAR-alpha agonist,
 a PPAR-delta agonist,

a biguanide,
a statin or other hydroxymethylglutaryl (HMG) CoA reductase inhibitor,
an alpha-glucosidase inhibitor,
a bile acid-binding resin,
5 apoA1,
niacin,
probucol,
and nicotinic acid.

10 22. A method for treating inflammatory or immunological disease, comprising: co-administering an effective amount of a compound of claim 1 or claim 2 and an agent selected from the group consisting of:

a nonsteroidal anti-inflammatory drug (NSAID),
a cyclooxygenase-2 inhibitor,
15 a corticosteroid or other immunosuppressive agent,
a disease-modifying antirheumatic drug (DMARD),
a TNF-alpha inhibitor,
other cytokine inhibitor,
other immune modulating agent,
20 and a narcotic agent.

23. The compound of claim 1 wherein Z is represented by:



24. The pharmaceutical composition of claim 3 wherein Z is represented by:

